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ABSTRACT

This guide for doctoral students (especially those from minority groups) and their mentors examines the alliance between the doctoral student and his major professor (dissertation advisor). Mentoring is examined as an element of the doctoral process, including discussion of the roles of the mentor/protege in the alliance, the choosing of a mentor, the formalizing of the mentoring alliance, and the evaluation of the mentoring process (mentor checklist). Several points are stressed: (1) for minority students, good mentoring is a key variable for determining success or failure in completing a doctoral program; (2) selecting a mentor is critical in that the one chosen must have the time and interest to accept the student as a protege; and (3) the mentor, in order to have a successful mentor/protege relationship, needs to become familiar with the protege beyond the superficial level. The booklet concludes with information on effective mentoring techniques for faculty mentors and a list of things to do and not to do that the student should keep in mind when involved in a mentor relationship. Contains 10 references. (GLR)

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Mentoring:

An Essential Factor in the Doctoral Process for Minority Students

by Howard G. Adams, Ph.D.

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Introduction

A unique feature of graduate education is the apprenticeship alliance formed between the mentor (faculty advisor) and the protegé (doctoral student). Such an alliance can be formed between any member of the graduate faculty who is asked and elects to serve as mentor for a specific protegé.

In the context of a doctoral student in an engineering or science doctoral program, the mentoring alliance is between the major professor (dissertation advisor) and the doctoral student.

This article addresses features of the mentor/protégé alliance by examining:

1) Mentoring as an element of the doctoral process;
2) The role of the mentor/protégé in the alliance;
3) Making the choice of a mentor;
4) Formalizing the mentoring alliance; and
5) Evaluating the effectiveness of the mentoring process (mentor checklist).

The Mentoring Process

Mentoring

The ancient Greeks were the first to use mentoring as a tool for talent development where the student (protégé) was placed under the tutelage of a teacher (mentor). Today, mentoring of doctoral students is carried on in the tradition of the Greek model.

For minority students, good mentoring is a key variable (Adams and Conley, 1986) for determining success or failure in completing a doctoral program. Indeed, quality mentoring is a success factor for all doctoral students. Cusanovich and Gilliland (1991) described mentoring as "an essential part of graduate education ... the heart" of the graduate study process (The Communicator, 1991).

One problem often encountered, when discussing minority students and effective mentoring practices, is the confusion over the terms *mentor* and *role model*.

Mentor – teacher or advisor; one who leads through guidance. The mentor *pushes* the protégé forward by providing support and guidance.

Role Model – a person whose behavior in a particular role is imitated by others; one who leads through positive examples. A role model *pulls* the protégé forward by setting positive examples.

A good mentor will, through positive examples, exhibit qualities of a good role model. *However, just being a good role model does not automatically make one a mentor. Indeed, one can be a good role model without being a mentor.* In most cases, faculty who are good mentors also serve the function of being good role models.

In the doctoral process, the mentor in the mentoring alliance functions quite different from what might be expected of a role model. The mentor not only inspires, but also assists the protégé in setting and reaching realistic goals. By helping the protégé stay focused, the mentor promotes productivity and timely progress toward predetermined milestones; time-to-candidacy and time-to-degree.

The Mentor

Webster defines "mentor" as a trusted counselor or guide; a tutor or coach. In this context, the major professor of a doctoral student serves as that trusted coach who guides the student through the *maze* of a doctoral program. The mentor offers advice and guidance on 1) planning the academic program and course selection; 2) planning and preparing to take and pass the comprehensive examination; 3) identifying and conducting an original piece of research; and 4) developing, producing, writing, presenting, and successfully defending the dissertation.

A good mentor is a must for minority doctoral students. Why? One cannot complete an engineering or science doctoral program without one! In addition to offering advice and guidance on academic matters, a good mentor becomes a confidence booster for the protégé; provides opportunity to broaden the protégé's horizon; assists the protégé with finding university resources (graduate study funding/research support, equipment, access to a laboratory, study space, etc.); and assists the protégé to become a legitimate member in the department and combat isolation. For minority engineering and science students, isolation – being an outsider to the department (departmental resources, research/study

For minority students, good mentoring is a key variable for determining success or failure in completing a doctoral program.

A good mentor is a must for minority doctoral students. Why? One cannot complete an engineering or science doctoral program without one!

groups, faculty counsel and advice, other graduate student colleagues) – is a major contributing factor in noncompletion of doctoral programs (Wells and Adams, 1990). By serving as an advocate for the protégé, the mentor becomes the bridge which links the student to the department and thus, fosters a spirit of collegiality – a community of scholars.

Good mentoring starts with the mentor getting to know the protégé beyond a superficial level. Acting on this knowledge, the mentor provides support and advice to the protégé as progress is made along the research continuum to completion of the degree and the launching of the professional career.

The Protégé

The quality of the graduate school experience and the success that the protégé enjoys is predicated on what each individual brings to the process – maturity, motivation, commitment, and academic prowess. The prevailing wisdom – "saged" advice passed along by former graduate students – is that in doctoral programs, "Murphy's Law" holds; "Anything that can go wrong, will." The ability to cope while handling problems with minimum disruption and loss of time is greatly determined by the protégé's ability to build and utilize effectively the mentoring alliance.

Progressing through the doctoral process requires a one-on-one alliance between the protégé and the mentor. This alliance is often referred to as the "It's Just You and Me, Doc" relationship. And, because such relationships have not been the norm between minority students (protégés) and the graduate faculty (mentors), forming the protégé/mentor alliance might be complicated by misgivings, apprehension, and fear.

To facilitate forming a workable mentoring alliance, the minority student might need to take the initiative. Too often, minority students place themselves in the position of waiting for some professor's offer to serve as a mentor. In reality, faculty are busy professionals who teach classes, write funding proposals, attend meetings, preside over research groups, advise graduate students, consult, etc. They have very little time or inclination to seek out some unknown student to volunteer their advice, counsel, and resources. To gain a commitment of time and support from busy faculty requires that they be asked.

Choosing a Doctoral Mentor

Selecting a mentor is one of the most important early tasks for a doctoral student. The mentoring alliance is so vital to completion of the doctorate, students must do their homework throughout the selection process.

The three questions listed below are basic areas to guide the investigative process of choosing a mentor.

1. **Is the faculty member in a position to share his/her time and advice?** Typically, graduate level faculty are expected to accept new doctoral students as protégés. However, because of temperament, research constraints, tenure status, etc., some faculty members might not have the time or will to take on a student, especially a minority student, in a helpful mentoring alliance.
2. **Does the faculty member have a reputation for producing quality research in a timely manner?** A major part of the doctoral process for each student is the development and completion of an original piece of research that is of publication quality. The mentor's research expertise and laboratory output will be crucial to the student's research productivity.
3. **Is the faculty member's current research area of interest to you and in keeping with your graduate study goals?** If your research interests are totally opposite from those of the faculty member, then this is probably not a good choice. To form an effective alliance there needs to be some commonality of interest.

Good mentoring starts with the mentor getting to know the protégé beyond a superficial level.

Sorting Through the Spectrum of Possibilities

In large departments, the range of possible mentors is as varied as the faculty. Most graduate engineering and science faculty represent the spectrum of age, gender, ethnicity, tenure status, research interest, etc. Additionally, the experience of the faculty in advising and guiding doctoral students may vary widely from those with no experience to others with years of experience; including having successfully mentored minority students through the doctoral process.

There is no "magic" way to identify a mentor. However, for minority students, the process usually begins with the student going on the offensive.

Selecting a mentor is one of the most important early tasks for a doctoral student.

A number of avenues are available for checking out which faculty member is available and who might have the time and interest required to mentor a student through the doctoral process. The important thing to remember in sorting through all of the possibilities is to know your interests, attitudes, skills, strengths, needs, and goals. Once you know who you are and what you want to accomplish through your graduate work, you are ready to begin your search.

The initial search phase might be simply labeled, "Getting to know the departmental faculty." To accomplish this, the student should schedule "get to know you" meetings with the faculty; attend departmental lectures and seminars; sit in on research group meetings, discussions, and reviews; read faculty-produced articles and research abstracts; etc. By taking advantage of opportunities to meet the departmental faculty, the student can learn about and sort through the styles, values, research areas, philosophies, and temperaments of potential mentors.

Information gathered through these "get to know you" sessions can be used to develop a short list of two to three good prospects. Next, you will want to take a closer look at each potential mentor through more formal discussions with each about your interests and graduate study plans. You will also want to talk with other graduate students, recent doctoral graduates of the department, and other persons outside the department that you know and whose opinion you respect.

Questions on the "Choosing a Mentor Checklist" (Figure 1) are designed to help students make an informed decision regarding the choice of a mentor. When this stage in the choice process is reached, the student should have narrowed the search to no more than three prospects. During the final assessment visits, each prospect should be asked all of the questions on the checklist.

To provide for uniformity and to make tabulation of results easier, each question has "yes" or "no" check off spaces for three prospects. Prospect One, Two, and Three should follow the same order on the checklist throughout the assessment.

To optimize the effectiveness of the checklist during the final assessment visits, the student should:

1) Read the items on the checklist carefully before each visit to become familiar and comfortable with all questions.

2) Change any question(s) that do not fit your interests or needs, and add new ones that you might wish to ask.

3) Get all questions asked; be open, forthright, and candid. Try to leave as little as possible to chance.

Ethnicity or Gender Issues

Students should not limit their search for a mentor to only minority or female faculty. Ideally, it would be nice for minority students to have access to professors with ethnic and cultural experiences that are similar and that also include members of both female and male gender. However, given that ethnic minority and female persons make up less than five percent of the engineering and science faculty, it is not possible to limit the search to these groups. *The main criteria for making the mentor choice is which faculty member has the time and interest to accept the student as a protegé* with the intention of providing the guidance, support, and encouragement necessary to complete the doctorate in a timely and productive manner.

Figure 1

Choosing a Mentor – Checklist

Does the professor have the time or interest needed to take you on as a doctoral student?

Prospect #1	Prospect #2	Prospect #3
Yes ___ No ___	Yes ___ No ___	Yes ___ No ___

Is the demeanor (personality, body language, etc.) appealing and comfortable for your academic style and needs?

Prospect #1	Prospect #2	Prospect #3
Yes ___ No ___	Yes ___ No ___	Yes ___ No ___

Are there ongoing research activities in the area of your doctoral interest?

Prospect #1	Prospect #2	Prospect #3
Yes ___ No ___	Yes ___ No ___	Yes ___ No ___

Have former graduate students of the professor had good experiences and completed their programs in a timely fashion?

Prospect #1	Prospect #2	Prospect #3
Yes ___ No ___	Yes ___ No ___	Yes ___ No ___

Are there sufficient research grants / projects available under the direction of the professor for you to find a suitable research area for a dissertation topic?

Prospect #1	Prospect #2	Prospect #3
Yes ___ No ___	Yes ___ No ___	Yes ___ No ___

Does the professor supervise appropriate space and laboratory equipment for you to have adequate space and equipment?

Prospect #1	Prospect #2	Prospect #3
Yes ___ No ___	Yes ___ No ___	Yes ___ No ___

Are there assistantship dollars available to support you as a graduate student and what is the likelihood that they will remain available until you complete your program?

Prospect #1	Prospect #2	Prospect #3
Yes ___ No ___	Yes ___ No ___	Yes ___ No ___

Does the professor anticipate being at the university during the entire period of your planned program?

Prospect #1	Prospect #2	Prospect #3
Yes ___ No ___	Yes ___ No ___	Yes ___ No ___

Does the professor exhibit the ability to communicate openly, clearly and effectively?

Prospect #1	Prospect #2	Prospect #3
Yes ___ No ___	Yes ___ No ___	Yes ___ No ___

Does the professor have personal research papers, articles, books, etc. that you might review to gain additional insight into his/her research area?

Prospect #1	Prospect #2	Prospect #3
Yes ___ No ___	Yes ___ No ___	Yes ___ No ___

Some questions to ask in discussing with others concerning your prospect list:

Does the professor have a history of giving proper attention to protege who serve under her/his guidance?

Prospect #1	Prospect #2	Prospect #3
Yes ___ No ___	Yes ___ No ___	Yes ___ No ___

Among the faculty and university community, is this professor respected for his/her research, writing, publications?

Prospect #1	Prospect #2	Prospect #3
Yes ___ No ___	Yes ___ No ___	Yes ___ No ___

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The main criteria for making the mentor choice is which faculty member has the time and interest to accept the student as a protégé.

Formalizing the Mentoring Relationship

The Mentor Role

Being willing to agree to serve as a mentor for a particular student is the starting point on the part of a faculty member in forming the mentoring alliance. The faculty member's responsibility doesn't stop here however. To make the alliance meaningful to the student and also beneficial to both parties, the faculty member (mentor) must be willing to:

- invest time and resources in the academic and professional development of the protegé;
- accept the protégé as a legitimate graduate student who has potential for academic success;
- communicate with the protégé in an open and honest manner;
- give sound, constructive, and critical review of the protégé's work, free of judgmental bias;
- hold the protégé to high standards of academic output;
- be an advocate for the protégé as progress is made toward completion of the doctorate; and
- help sponsor and promote the protégé into the profession.

Mentor Assessment

The "Report Card for Faculty Mentors" (Figure II) offers a list of action items that are important features of the mentor's role in the life of a doctoral student. Questions on the "Report Card" allow the mentor to measure the degree of commitment and involvement in the mentoring process. By grading yourself, you can make an assessment on the quality of mentoring you provide and identify areas that need strengthening. You will know that you are doing an outstanding job mentoring if your overall rating from the "Report Card" is an "A."

The Protégé Role

Once initiated, the mentoring alliance will only evolve into a meaningful and worthwhile relationship if the student utilizes the mentor properly. Figure III provides some basic "do's" and "don'ts" that the protégé needs to adhere to if the greatest value is to be realized from the mentoring alliance. Disregard for these basic tenets can retard one's progress. Total disregard for the majority of these will almost certainly spell failure for the doctoral student.

Proper use of the mentor begins with the protégé working to build an atmosphere of trust and respect. Try to put the mentor at ease about working with you. Let the mentor know that you are a serious student; one who is willing to learn and is receptive to advice and counsel.

Demonstrate your commitment to being a full-time, serious student by going the "extra mile." When necessary, repeat a procedure or practice over and over again until you have mastered it. The more you learn and bring to your studies, research activities, and writings, the more it will help you to gain the confidence, trust, and respect of your mentor.

Take advantage of every opportunity to keep the mentor informed regarding your progress. If periodic updates are not required, you should schedule, at minimum, bi-weekly meetings. If research progress does not warrant meetings of this frequency, then use these meeting times to discuss and report on current readings germane to the mentor and your own research area.

Work with your mentor to develop and establish realistic, timely, and obtainable goals. Clearly delineated goals help to define the parameters for the doctoral plan. For the mentor to be most effective your goals have to be understood and accepted.

In all of your dealings with your mentor, be open and straight forward. *Never* "play" your mentor against other members of the faculty.

Benefits from the Mentoring Alliance

The mentoring alliance provides tangible benefits to both the mentor and protégé. For the faculty member, the mentoring alliance provides the mentor with increased opportunities to become better acquainted with his/her student – needs, goals, expectations, strengths, and weaknesses. From the alliance, the mentor gains knowledge, insight, and clues about the protégé that can be used in advising and counseling sessions.

Figure II

Effective Mentoring Techniques:
A Report Card for Faculty Mentors

Grade yourself with an A, B, C, D, or F as a mentor to minority graduate students. An "A" means excellent for that area. An "F" means that you have a lot of work to do.

Do I:

——— Introduce protégé to faculty in the department.

——— Introduce protégé to key administrators within the college/school.

——— Teach protégé survival skills helpful to doctoral students.

——— Provide feedback on protégé's self-assessment and targeted career goals.

——— Protect protégé from the "pitfalls" of departmental politics.

——— Suggest opportunities for relevant research and training experiences.

——— Share information about the dynamics of formal and informal systems within the institution.

——— Share perceptions about departmental culture and its evolution.

——— Suggest articles, authors or titles designed to broaden experience base.

——— Share relevant aspects of personal career and resulting lessons learned.

——— Provide coaching on behavior and skills that can facilitate career progress.

——— Make myself available for counseling on professional and personal problems.

——— Share information about how to get things done within the departments.

——— Help establish protégé's scholarly reputation.

——— Provide guidance, coaching and direction during the dissertation research process.

——— Help to prepare students for the milestones that must be met.

——— Help launch protégé's professional career.

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Beyond these basic "get acquainted" benefits, the rewards of being a mentor to a doctoral student are many and can serve to enhance the career of the faculty member. From the alliance the mentor can expect gain:

An Apprentice – A student to work and learn under the tutelage of the mentor.

A Willing Worker – A pair of willing hands that have a stake in the outcome of the research and is thus willing to put in long hours for a small amount of compensation.

A Critic – New ideas leading to expanded research opportunities often flow from open discussion. Protégés can and do provide critical review of the mentor work.

An Invigorator – A fresh, and sometimes different, perspective that serves as a catalyst or innovator to "recharge" the mentor.

A Literature Reviewer – The protégé becomes another reviewer of the literature which expands the mentor's opportunity to stay current and cover more of the research literature in the field.

For the protégé, some benefits that accrue from the alliance are quite obvious – that is, the protege is expected to gain:

A Confidant – A person to whom secrets are confided.

A Sponsor – Someone to speak on the protegé's behalf.

A Role Model – A standard that exemplifies excellence.

An Advisor – Someone to help plan strategies to survive and excel as a doctoral student.

A Teacher – Someone to pass on lessons learned from prior experiences.

A "Door Opener" – Someone to cut through the bureaucracy that control information, resources, equipment, space, etc., so vital to the satisfactory completion of the doctorate.

Other benefits, such as gaining a protector, supporter, and promoter, are also realized through the alliance but might not be as obvious.

Because of the nature of the graduate school process, minority students may face the added stress of gaining acceptance. The mentor as a protector, supporter, and promoter becomes that all-important advocate who makes sure that all actions regarding the protégé are done so with that student's best interests in mind.

Figure III

- *Do* seek and accept the advice of your mentor in planning your program of study.
- *Don't* interpret critical review of your performance/progress as a personal attack.
- *Do* prepare for meeting with your mentor to maximize the time allotted for progress reporting.
- *Don't* expect your mentor to have all the answers; rather use the mentor's experience as a "sound board" to try out your ideas and options – you are responsible for your fate.
- *Do* treat graduate school as graduate *work* – an undertaking that requires total commitment of time and effort. Let your mentor know that you are a serious student.
- *Don't* get involved in negative departmental politics. You are not there to change the world, but rather to get the Ph.D. Remember: "It's Just You and Me, Doc!"

Concluding Thoughts

Today, mentoring is the avant-garde topic in higher education circles. Most major conferences directed toward college-level education include sessions on mentoring. This is particularly true of those conferences that have as their focus diversity issues.

For practitioners that deal with the personal and academic development of minority students, these sessions are a welcomed addition. They are tempered, however, by the knowledge that these sessions are "played on stages" far removed from most of the engineering and science faculty. While student development persons are more likely to be concerned with discussions on faculty mentoring techniques, faculty tend to be down the hall in other sessions or at totally different conferences deeply involved in the latest scientific discovery, issues surrounding technology transfer, sources for funding research, etc. The faculty rarely venture into sessions on student issues. They associate such sessions as below their need to know. And thus, they fail to expand their knowledge on trend changes taking place in student development.

Such attitudes might have been acceptable when graduate education – particularly in engineering and science – was mostly white and male dominated. With the move today to democratize graduate education (provide access and choice to a wider range of students), faculty members must adjust and change their patterns of behavior in dealing with students. And nowhere are these changes needed more than in relating and working with minority students.

At the graduate level, these changes need to occur in the mentoring process. Here the mentor becomes that significant person in the life of a minority doctoral student who, through their efforts, make the goal of obtaining the doctorate possible.

Mentoring is not a panacea for solving all of the problems confronting minority students as they progress through a doctoral program. A good mentor will, however, smooth out some of the "rough places"; cut through some of the "red tape"; serve as a comforter when the task seems impossible; and in general, keep the protégé moving forward. In the final analysis, much of what is required to complete the doctorate is predicated on the student (protégé) being able to say, "It's Just You and Me, Doc. You tell me what to do and I will do it. Together, with you as mentor and me as protégé, we will complete this doctorate."

In the final analysis, much of what is required to complete the doctorate is predicated on the student (protégé) being able to say, "It's Just You and Me, Doc. You tell me what to do and I will do it. Together, with you as mentor and me as protégé, we will complete this doctorate."

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On September 1, 1989, the National Consortium initiated operation of the GEM Center for Graduate Education for Minorities. Through the Center, comprehensive nationwide programs have been established to identify, recruit, and enroll minority science and engineering students in graduate programs leading to an advanced degree. The Center serves as the hub and focus for six GEM program components:

1) GEM M.S. Engineering Fellowship Program;
2) GEM Ph.D. Engineering Fellowship Program;
3) GEM Ph.D. Physical/Life Science Fellowship Program;
4) Database Clearinghouse/Research Component;
5) The JOURNEY Project – a guidance counseling series of videotapes to motivate students toward careers in science and engineering; and
6) "Why Graduate School?" – an annual nationwide teleconference designed to provide students with information on making the decision to pursue graduate studies and on selecting, gaining admission, financing, and completing a graduate program.

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